PATENT APPLICATION
Attorney Docket No. Q48591

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Jiangtao WEN, et al.

Appln. No.: 09/203,672 Group Art Unit: 2613

Confirmation No.: none Examiner: Shawn An

Filed: December 01, 1998

For: METHOD FOR REPRESENTING ENCODING
UPON CODING VIDEO INFORMATION

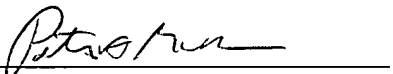
SUBMISSION OF APPELLANTS' BRIEF ON APPEAL

Commissioner for Patents
Washington, D.C. 20231

Sir:

Submitted herewith please find an original and two copies of Appellants' Brief on Appeal. A check for the statutory fee of $320.00 is attached. Authorization is also given to charge or credit any difference or overpayment to Deposit Account No. 19-4880. A duplicate copy of this paper is attached.

Respectfully submitted,



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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

Commissioner for Patents
Washington, D.C. 20231

Sir:

In accordance with the provisions of 37 C.F.R. § 1.192, Appellant submits the following:

I. REAL PARTY IN INTEREST

The real party in interest is SAMSUNG ELECTRONICS CO., LTD., by virtue of an assignment executed by Jiangtao Wen and John D. Villasenor and Jeong-hoon Park (Appellants hereafter), on December 2, 1998, and recorded by the Assignment Branch of the U.S. Patent and Trademark Office on March 5, 1999 (at Reel 9932, Frame 0425).

II. RELATED APPEALS AND INTERFERENCES

To the knowledge and belief of Appellants, the Assignee, and the undersigned, there are no other appeals or interferences before the Board of Appeals and Interferences that will directly affect or be affected by the Board's decision in the instant Appeal.

III. STATUS OF CLAIMS

Claims 8-14 are pending in the application. Claims 8-11 and 14 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Suzuki et al (USP 6,097,842). Claims 12 and 13 are objected to as being dependent upon rejected base claim 8, but would be allowable if rewritten in independent form.

IV. STATUS OF AMENDMENTS

All Amendments have been entered in this application.

V. SUMMARY OF THE INVENTION

The invention relates to a method for use in a system in which information is transmitted. In the prior art, when transmitting MPEG 4-type data, a COD field is transmitted. The COD field has one bit which indicates whether or not a motion vector and a DCT are encoded in the bit stream. That is, if the COD field is "0", the information is not motion vector and DCT

encoded. Because the COD field is represented by only one bit, if this bit has an error, the information is easily misinterpreted. Additionally, there is no way to tell if the information is encoded using only a motion vector or is encoded using only DCT. For example, if an image is in motion on a predetermined background, then only the motion vector is needed for encoding.

The present invention improves on the prior art by providing a field code having at least two bits. Preferably, when the COD field has a bit value of "11", it indicates that neither the motion vector nor the DCT value are encoded; when the COD field has a bit value of "00", it indicates that both the motion vector and the DCT are encoded; and when the COD field has a bit value of "01", it indicates that only the MV is encoded.

Preferably, when an error exists in a channel, only the two values of "00" and "11" are used in an error allowable mode.

VI. ISSUES

The sole issue on appeal is whether claims 8-11 and 14 are properly rejected under 35 U.S.C. § 102(e) as being anticipated by Suzuki et al (USP 6,097,842).

VII. GROUPING OF CLAIMS

For purposes of the present appeal, the rejected claims do not stand or fall together. Specifically, the rejected claims are divided into the following separately patentable groups.

Group 1: Claims 8-10.

Group 2: Claim 11.

Group 3: Claim 14.

VIII. ARGUMENTS

In rejecting claims 8-11 and 14 as being anticipated by Suzuki et al, the Examiner states:

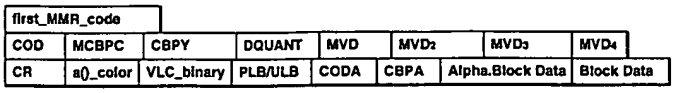
> Suzuki et al disclose a method for use in a system comprising the steps of: generating an extended code (COD) field representing a coding state of the information (Fig. 40A. COD); and including, in the extended code field, a bit stream indicating whether both a motion vector and a DCT value being not encoded (Col. 33, lines 54-60), whether both the motion vector and the DCT are encoded (Col. 35, lines 1-8), or whether only the motion vector is encoded (Col. 34, lines 31-40 and Col. 35, lines 1-3) as specified in claim 8.

Appellants submit, however, that Suzuki et al discloses a one bit COD field for use with an I- or P-picture, which when set to "0" signals that the macro-block is coded, and if set to "1" indicates that no further information is transmitted for this macro-block. In the latter case, the decoder treats the macro-block as an INTER macro-block with motion vector for the whole block equal to zero and with no coefficient data. Suzuki et al also discloses an MODB flag for use with B-pictures, wherein the MODB flag can indicate: 1) whether the macro-block of the B-picture is skipped (i.e., no data subsequent to the MODB is transmitted for the macro-block); 2) whether a motion vector are transmitted; and 3) whether DCT coefficients and a motion vector

are transmitted. In rejecting the claims, the Examiner has mixed the functions of the COD and the MODB as though these functions were included in a single flag.

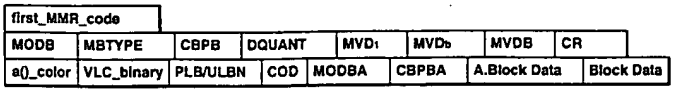
In more detail, the Examiner seems to be correct that Suzuki et al, in Fig. 40 A, discloses generating an extended code (COD) field representing a coding state of the information, and discloses, at col. 33, lines 54-60, including, in the extended code field, a bit stream indicating whether both a motion vector and a DCT value are not encoded. Specifically, Suzuki et al, at col. 33, lines 51+, discloses:

> FIG. 40A [reproduced below] shows the syntax of a macro-block of an I- or P-picture. The flag COD, which is arranged next to the leading first __MMR__ code, specifies whether or not any data is next to the COD. If the DCT coefficients obtained from a macro-block of an I-picture or a P-picture (result of quantization of the DCT coefficients) are all zero and the motion vector is zero, the VLC unit 36 of the lower layer encoding unit 25 (FIG. 22) and the upper layer encoding unit 23 (FIG. 23) sets the macro-block of the I-picture or the P-picture as a skip macro-block and sets the COD to 1. Therefore, if the COD is 1, there is no data to be transmitted for the macro-block, so that data subsequent to the I-flag is not transmitted. On the other hand, if ac components other than 0 are present in the DCT coefficients of the I- or P-picture, the VLC unit 36 sets the flag COD to 0 and may transmit subsequent data.



Structure of macroblock layer in I-and P-VOPs

FIG.40A



Structure of macroblock layer in B VOPs

FIG.40B

This arrangement is similar to the prior art arrangement described in the present application.

However, Appellants respectfully submit that Suzuki et al does not disclose that the COD indicates whether both the motion vector and the DCT are encoded (at col. 35, lines 1-8 as indicated by the Examiner, or anywhere else in the patent), or whether only the motion vector is encoded (at col. 34, lines 31-40 and col. 35, lines 1-3 as indicated by the Examiner, or anywhere else in the patent). The portions of the reference cited by the Examiner as teaching these features relate to the MODB flag of a B-picture macro-block, which is separate from the COD field of the I-picture or P-picture.

In more detail, Suzuki et al, at col. 34, lines 25 to 30, states:

> FIG. 40B [reproduced above] shows the syntax of a macro-block of a B-picture (VOP). The flag MODB, arranged next to the leading first__MMR__code, is associated with the flag COD in FIG. 40A, and specifies whether or not any data is arranged next to the MODB (that is, specifies the macro-block type of the B-picture).

Further, Suzuki et al, at col. 34, line 66 to col. 35, line 8, states:

> If, however, the DCT coefficients (quantized DCT coefficients) for a macro-block [of a B-picture] all have the same value (such as 0) but a motion vector for the macro-block exists, so that is the motion vector should be transmitted, the MODB is set to `10` and the next following MBTYPE is transmitted. On the other hand, if at least one of the DCT coefficients of the macro-block is not zero (that is, if a DCT coefficient exists) and a motion vector for the macro-block exists, the MODB is set to `11` and the next following MBTYPE and CBPB are transmitted.

The terms COD and MODB have art-recognized meanings which are consistent with the description in Suzuki et al and consistent with the arguments presented above. Thus, Appellants respectfully submit that the Examiner has improperly attributed the features of the MODB (which relates to the B-picture macro-block) to the COD (which relates to the I-picture macro-block) in a manner which is not consistent with the recognized meaning of these terms of art.

At least for the above reasons, Appellants submit that Suzuki et al does not teach generating an extended field code (COD) which includes a bit stream indicating whether both a motion vector (MV) and a discrete cosine transform (DCT) value are not encoded, whether both the MV and the DCT are encoded, or whether only the MV is encoded.

The Examiner has responded to the above arguments by stating that Suzuki's incorporation of both the COD and the MODB field codes meets the claimed field code (COD)

having at least two bits. Further, the Examiner states that he considers Appellant's field code (COD) and Suzuki et al's COD and MODB field codes to be nothing more than a label change which is not of much patentable import. (See Paper No. 13, Page 2, Numbered Paragraph 1.) In response, Appellant submits that the claimed COD code is different from the incorporation of both the COD and MODB codes of Suzuki et al.

In more detail, Suzuki et al uses the COD and the MODB as separate concepts. The COD is a one-bit field used to indicate whether or not any data is next to the COD; the MODB may be more than one bit and provides indications with respect to DCT coefficients and motion vectors. Thus, the concepts of COD and MODB are fundamentally different and are not merely different labels for the same idea.

Also, the COD, considered by itself, is a different concept than the combination of the COD and the MODB. The COD is associated with the I and P pictures, while the MODB is associated with the B-pictures. The COD and MODB fields are present in different macroblock layers, as reference to Figs. 40A and 40B readily indicates. Thus, there is no teaching in Suzuki et al for incorporating these fields together.

In summary, Appellant submits that Suzuki et al clearly teaches a COD field and a separate MODB field, with the COD being explicitly defined as a one-bit field. On the other hand, claim 8 clearly requires more than one bit in the COD field. Appellant respectfully submits that the Examiner has improperly attributed the characteristics of Suzuki et al's MODB field to Suzuki et al's COD field, to conclude that Appellant's COD field may be more than one

bit, thus ignoring the explicit teaching of Suzuki et al of a one-bit COD field. The term COD as used in claim 8 has an art recognized meaning, and Suzuki et al's use of the term COD conforms to the art recognized meaning. Appellant believes that the Examiner has improperly incorporated other concepts into Suzuki et al's explicit teaching with respect to the COD and has thereby changed the teaching of Suzuki et al.

Furthermore, claim 11 is believed to be separately patentable from claims 8-10 and 14. Claim 11, which depends from claim 10, recites "the COD field having a bit value of "11" indicates that neither the MV nor the DCT value are encoded, the COD field having a bit value of "00" indicates that both the MV and the DCT are encoded, and the COD field having a bit value of "01" indicates that only the MV is encoded." In rejecting claim 11 as being anticipated by Suzuki et al, the Examiner states:

> Suzuki discloses the field code having a bit value "00" indicating neither the MV not the DCT value are encoded, a bit value "11" indicating both the MV and the DCT value are encoded (Col. 35, lines 3-8), and a bit value "10" indicating only the MV is encoded as specified. Therefore, it is considered quite obvious to simply interchange a bit value to another assigned bit value as specified.

Thus, in rejecting claim 11, the Examiner seems to admit that Suzuki et al does not disclose the claimed arrangement, but believes the claimed arrangement to be "quite obvious" from the arrangement of Suzuki et al. It is well settled, however, that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently

described, in a single prior art reference." *Verdegaal Bros. V. Union Oil Co. of California*, 814 F2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). In the present case, since the Examiner has admitted that Suzuki et al does not disclose each and every element as set forth in the claim, either expressly or inherently, Appellants submit that the rejection of claim 11 is improper. Further, Appellants submit that claim 11 is separately patentable from claims 8-10, at least because claim 11 recites "the COD field having a bit value of "11" indicates that neither the MV nor the DCT value are encoded, the COD field having a bit value of "00" indicates that both the MV and the DCT are encoded, and the COD field having a bit value of "01" indicates that only the MV is encoded", which is not disclosed or suggested by Suzuki et al.

Furthermore, claim 14 is believed to be separately patentable from claims 8-11. Claim 14, which depends from claim 10, recites that the "information is encoded by using only MV, when motion of an image is constant."

In rejecting claim 14 as being anticipated by Suzuki et al, the Examiner states: "Regarding claim 14, it is considered obvious and well known to encode only MV when motion of an image is constant in order to reduce bits required for coding video frames as specified." Thus, it appears that the Examiner concedes that Suzuki et al does not disclose the feature of claim 14 that the "information is encoded by using only MV, when motion of an image is constant." For reasons similar to those discussed above with respect to claim 11, Appellants

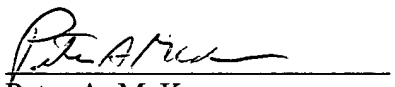
submit that claim 14 is improperly rejected under 35 U.S.C. § 102, because not all the claimed features are expressly or inherently disclosed in one reference.

Further, Appellants submit that claim 14 is separately patentable from claims 8-11, at least because claim 14 recites that the "information is encoded by using only MV, when motion of an image is constant", which is not disclosed or suggested by Suzuki et al.

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

Appellants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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Date: November 2, 2001

CLAIMS 8-11 and 14 ON APPEAL:

8. A method for use in a system in which information is transmitted, said method comprising the steps of:

generating an extended code (COD) field representing a coding state of said information; and

including, in said extended code field, a bit stream indicating whether both a motion vector (MV) and a discrete cosine transform (DCT) value are not encoded, whether both the MV and the DCT are encoded, and whether only the MV is encoded.

9. The method of claim 8, wherein said extended code field comprises at least two bits.

10. The method of claim 9, wherein said extended code field is used in H.263 or MPEG-4 encoding standards.

11. The method of claim 10, wherein the COD field having a bit value of "11" indicates that neither the MV nor the DCT value are encoded, the COD field having a bit value of "00" indicates that both the MV and the DCT are encoded, and the COD field having a bit value of "01" indicates that only the MV is encoded.

14. The method of claim 10, wherein information is encoded by using only MV, when motion of an image is constant.